

# UK National Clinical Guidelines in Paediatric Dentistry: treatment of traumatically intruded permanent incisor teeth in children

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There is a lack of general agreement and scientific evidence concerning the best treatment for traumatically intruded permanent teeth in children. The rare occurrence of this injury (0.3–1.9% in the permanent dentition) has resulted in limited studies to support suggested treatment regimes. The following guidelines are based on the available evidence and are intended to be of assistance to practitioners who may be involved in the management of such cases.

Decisions regarding treatment may vary according to the maturity of the root and the severity of intrusion. There are three available modalities of treatment: passive repositioning (PR), to allow the tooth to re-erupt; immediate surgical repositioning or orthodontic repositioning using removable or fixed appliances.

Root development has been shown to be an important determinant for the success of PR. Table 1 summarises treatment guidelines for intruded permanent incisors. The aim of treatment is that the tooth is maintained if possible, but very severe injuries may require tooth extraction in some circumstances.

**Table 1. Summary of treatment recommendations for intruded incisors.**

	Incomplete root development	Complete root development
Mild (< 3 mm)	PR	PR after 2–3 weeks OR**
Moderate (3–6 mm)	PR*	SR or OR***
Severe (>6 mm)	PR*	SR

\*Passive repositioning (PR) in preference to orthodontic repositioning (OR), i.e., not personal preference. If PR is not working within 3 weeks start OR.

\*\*If PR not working within 2–3 weeks start OR.

\*\*\*OR and surgical repositioning (SR) both appropriate; however, SR often involves fewer visits.

## Antibiotic treatment

The benefit of systemic antibiotic treatment upon pulpal or periodontal healing is unproven. The use of antibiotics is, however, governed by clinical judgement (e.g. contamination, associated hard and soft tissue injuries).

## Follow-up management

### Root canal therapy

Teeth with incomplete root development should be monitored closely with root canal treatment being indicated only following diagnosis of pulp necrosis. On the other hand, due to the very high risk of loss of pulpal vitality in teeth with complete root development, root canal treatment is often indicated in cases of moderate to severe intrusion. There is also a high risk of root resorption in these teeth. The recommended time to start root canal treatment is approximately 2 weeks after the injury.

## Prognosis

Intrusive luxation in permanent teeth has been associated with severe complications,

**Table 2. Summary of the outcome of traumatically intruded permanent teeth.**

Complication	Pulp necrosis (%)	Root resorption (%)	Marginal bone loss (%)	Survival (%)
All stages of root development (RD)	45–96	11–80	6–48	69–95
Incomplete RD	61–67	42–68	5	–
Complete RD	88–98	51–73	44	–

especially pulp necrosis, external root resorption and marginal bone loss. Parents and patients can be informed of the range of clinical outcomes associated with intrusive luxa-

tion. Table 2 summarises the findings of available outcome studies on the long-term prognosis and survival of intruded permanent teeth.

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